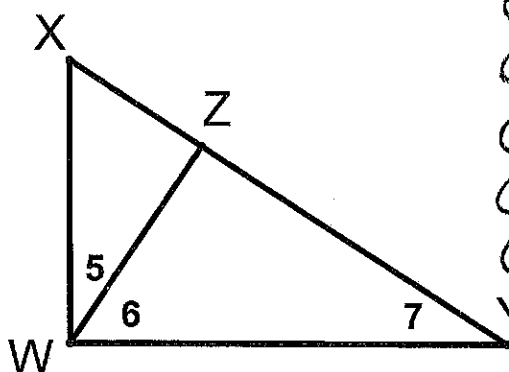


Name Key

Date _____

202 More Chapter 2 Proofs
(2.6-2.8 worksheet #3)1. Given: $\angle 6$ and $\angle 7$ are complementary

$$m\angle 7 = m\angle 5$$

Prove: $\overline{WX} \perp \overline{WY}$ 

Statements

Reasons

① $\angle 6 + \angle 7$ are compl.
 $m\angle 7 = m\angle 5$

① Given

② $m\angle 6 + m\angle 7 = 90$

② def of Compl.

③ $m\angle 6 + m\angle 5 = 90$

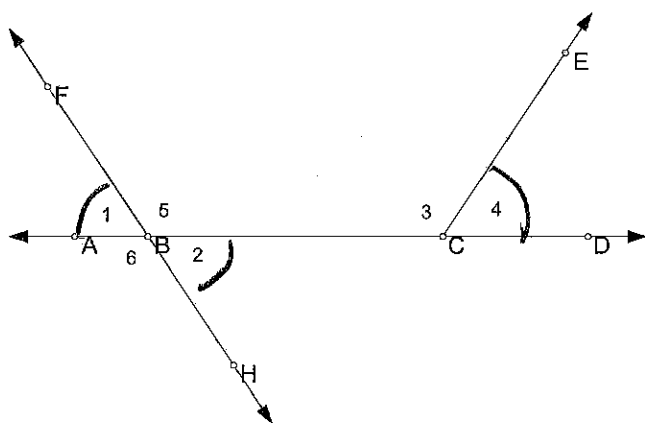
③ subst

④ $m\angle 6 + m\angle 5 = m\angle XWY$

④ AAP

⑤ $m\angle XWY = 90$

⑤ subst

⑥ $\angle XWY$ is a rt. \angle ⑥ def of Rt. \angle ⑦ $\overline{WX} \perp \overline{WY}$ ⑦ def of \perp lines2. Given: $\angle 2$ and $\angle 3$ are supplementaryProve: $\angle 1 \cong \angle 4$ 

Statements

Reasons

① $\angle 2 + \angle 3$ are
suppl.

① Given

② $\angle 4 + \angle 3$ are suppl

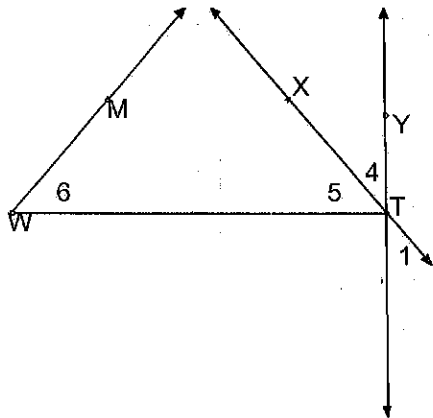
② Suppl. thm

③ $\angle 2 \cong \angle 4$ ③ Suppl. of \cong \angle s are \cong ④ $\angle 1 \cong \angle 2$ ④ Vert \angle s are \cong ⑤ $\angle 1 \cong \angle 4$

⑤ Subst

3. Given: $\overline{TY} \perp \overline{TW}$

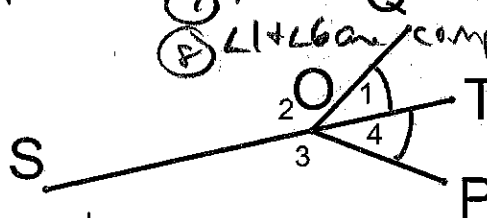
$\angle 5 \cong \angle 6$

Prove: $\angle 1$ and $\angle 6$ are complementary

Statements

Reasons

- | | |
|---------------------------------------|-------------------------|
| ① $\overline{TY} \perp \overline{TW}$ | ① Given |
| ② $\angle WTY$ is a right \angle | ② def of \perp |
| ③ $\angle 4 + \angle 5$ are compl. | ③ Compl. thm |
| ④ $m\angle 4 + m\angle 5 = 90$ | ④ def of Compl. |
| ⑤ $m\angle 4 + m\angle 6 = 90$ | ⑤ subst |
| ⑥ $\angle 4 \cong \angle 1$ | ⑥ vert $\angle s \cong$ |
| ⑦ $m\angle 1 + m\angle 6 = 90$ | ⑦ subst |
| ⑧ $\angle 1 + \angle 6$ are compl. | ⑧ def of Compl. |

4. Given: \overline{OT} bisects $\angle QOP$ Prove: $\angle 3 \cong \angle 2$ 

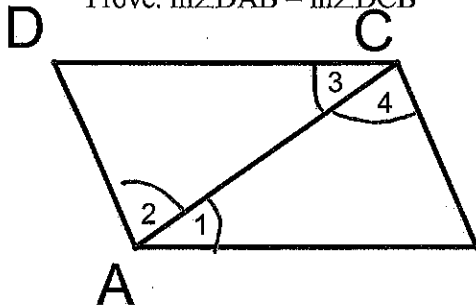
Statements

Reasons

- | | |
|--|--|
| ① \overline{OT} bisects $\angle QOP$ | ① Given |
| ② $\angle 1 + \angle 2$ are suppl.
$\angle 3 + \angle 4$ are suppl. | ② Suppl. thm |
| ③ $\angle 1 \cong \angle 4$ | ③ def of \angle bisector |
| ④ $\angle 3 \cong \angle 2$ | ④ suppl. of $\cong \angle s$ are \cong |

5. Given: \overline{AC} bisects $\angle DAB$ \overline{AC} bisects $\angle BCD$

$m\angle 1 = m\angle 3$

Prove: $m\angle DAB = m\angle DCB$ 

Statements

Reasons

- | | |
|---|--------------------|
| 1. ~ | 1. Given |
| 2. $m\angle 1 = m\angle 2$
$m\angle 3 = m\angle 4$ | 2. def of Bisector |
| 3. $m\angle DAB = m\angle 1 + m\angle 2$
$m\angle DCB = m\angle 3 + m\angle 4$ | 3. AAP |
| 4. $m\angle DAB = m\angle 1 + m\angle 1$
$m\angle DCB = m\angle 3 + m\angle 3$ | 4. subst |
| 5. $m\angle DAB = 2m\angle 1$
$m\angle DCB = 2m\angle 3$ | 5. subst |
| 6. $m\angle 1 = m\angle 3$ | 6. Given |
| 7. $2m\angle 1 = 2m\angle 3$ | 7. Mult. |
| 8. $m\angle DAB = m\angle DCB$ | 8. subst |